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Technology and Intellectual Property: Out of Sync or Hope for the Future?

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Technology and Intellectual Property: Out of Sync or Hope for the Future?

Cover Page Footnote

This Essay follows from a speech presented at the Fordham Intellectual Property Law Institute's Twentieth Annual Conference on April 13, 2012. The author is grateful for the advice and assistance of Susan Mann, Jason Albert, and Kate Behncken of Microsoft Corporation and Marty Hansen and Jeffrey Kosseff of Covington and Burling in the finalization of this piece.

Technology and Intellectual Property: Out of Sync or Hope for the Future?*

Bradford L. Smith**

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INTRODUCTION

Are the pace of technological advances and the development of intellectual property law out of sync, or is there hope for the future? This question, posed at the Fordham Intellectual Property Law Institute's Twentieth Annual Conference in April 2012, seems

* This Essay follows from a speech presented at the Fordham Intellectual Property Law Institute's Twentieth Annual Conference on April 13, 2012. The author is grateful for the advice and assistance of Susan Mann, Jason Albert, and Kate Behncken of Microsoft Corporation and Marty Hansen and Jeffrey Kosseff of Covington and Burling in the finalization of this piece.

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to present itself anew each time we read of the latest smartphone patent lawsuit or the most recent legislative battle to address online piracy.

While this question is particularly timely today, it would have felt equally relevant and pressing had it been asked ten, fifty, or even one hundred years ago. In recent history, major technological changes have caused disagreement among groups on a particular intellectual property (IP) issue. The process of resolving these conflicts has gradually led to changes in the law. If we look back over a hundred years, or more, we can see clear parallels to the IP debates of today. Whether we consider the invention of the sewing machine in the nineteenth century, or the latest software advances of the twenty-first century, the similarities provide lessons about both the impact of technological inventions on the law, and the impact of law on new technology.

This historical perspective is worth noting as we survey the recent past and look to the future. In 2012, a number of widely covered policy debates focused on developments at the interface of intellectual property and technology. The beginning of 2012 saw the United States Congress first appear to embrace, and then decisively reject, the Stop Online Piracy Act (SOPA)¹ and the Preventing Real Online Threats to Economic Creativity and Theft of Intellectual Property Act (“PROTECT IP Act,” or “PIPA”).² Later in the year, members of Congress studied the disruptive impact of the assertion of standard essential patents (“SEPs”) in actions before the International Trade Commission (“ITC”) and urged that steps be taken to ensure that companies cannot use SEPs to thwart competition.³

¹ H.R. 3261, 112th Cong. (2011).

² S. 968, 112th Cong. (2011).

³ *Oversight of the Impact on Competition of Exclusion Orders to Enforce Standard-Essential Patents: Hearing Before the S. Comm. on the Judiciary*, 112th Cong. 2 (2012) (statement of Sen. Patrick Leahy, Chairman, S. Comm. on the Judiciary) (“In March, I wrote to the administration expressing concern that ITC exclusion orders can be misused to prevent rival technologies when holders of standard-essential patents fail to reach agreement on licensing terms. These orders can pose a significant threat to competition and innovation, especially where competitors have developed products based on a mutual commitment to license standard-essential patents on reasonable terms.”).

During 2013, the debate over standard essential patents will continue. Further, we can expect government officials and regulators worldwide, but particularly at the ITC, to consider measures to address abusive practices by so-called “patent trolls.” Concerns about trade secret theft, fueled by high-profile cases both in the United States and elsewhere, are expected to draw the attention of industry and policymakers and will undoubtedly renew calls for government action.⁴ These and related IP debates will continue to shape the landscape of intellectual property for years to come.

In this Essay, I suggest that major advances in technology often result in tension and conflict—initially between the inventor and follow-on competitors, though these are often also cast as a battle between innovators and consumers—and the protracted process of resolving such tensions helps to drive changes in the law—sometimes through legislation, but other times in more piecemeal fashion through the courts. I also argue that this process, although often gradual and proceeding in fits and starts, has been remarkably adept at maintaining a healthy and ultimately effective balance between the interests of inventors and creators, their competitors, consumers, and society at large.

Part I of this Essay examines several historical advances in technology that fueled major policy and political conflicts, which led to changes in intellectual property law. Part II focuses specifically on how intellectual property protection for software has evolved in the face of dramatic and rapid advances in technology. Part III applies the learning from these historical examples to the current debates around standard essential patents, online piracy, and other intellectual property issues that Congress and the courts are likely to confront this year.

⁴ See Daren M. Orzechowski & Meredith Louis, *Amendments to the Economic Espionage Act Broaden Trade Secret Protection*, WHITE & CASE (Jan. 2013), <http://www.jdsupra.com/legalnews/amendments-to-the-economic-espionage-act-69554/> (discussing recent amendments to the Economic Espionage Act of 1996 and the renewed government interest in trade secret protection).

I. HISTORICAL EXAMPLES OF TECHNOLOGICAL INNOVATION DRIVING LEGAL CHANGE

Read any article on “patent trolls” or the latest online piracy site and it is easy to assume that IP debates are more dramatic today than they have ever been before.⁵ In fact, however, IP debates over the past decade have not been nearly as heated as those that erupted in the second half of the 1800s. If you look back to those debates, there exist some interesting parallels to those we are witnessing today.

One of the fiercest IP battles of this era involved the sewing machine.⁶ While we might consider sewing machines prosaic in 2013, they arguably transformed the lives of nineteenth century Americans as much as the Internet is transforming people’s lives today.⁷ Sewing machines especially impacted women who lived on farms, because they dramatically changed what women were able to achieve and produce even while working in and maintaining a farm household.⁸

Isaac Singer, one of the inventors of the technology that contributed to the sewing machine,⁹ was a leading participant in

⁵ See, e.g., “Patent Trolls”: How Some Say They’re Hurting U.S. Economy, CBS NEWS (Dec. 21, 2012, 9:56 AM), http://www.cbsnews.com/8301-505263_162-57560405/patent-trolls-how-some-say-theyre-hurting-u.s-economy/ (“Research shows [patent troll-related] litigation has cost investors an estimated half a trillion dollars since 1990.”).

⁶ See Susan Decker, *Apple Phone Patent War Like Sewing Machine Minus Violence*, BLOOMBERG (Oct. 8, 2010), <http://www.bloomberg.com/news/2012-10-08/apple-phone-patent-war-like-sewing-machine-minus-violence.html> (describing how the sewing machine “battle spread to every manufacturer then laying claim to some unique feature” and, according to law professor Adam Mossoff, “burst into a full-scale war by 1853.”).

⁷ See John H. Lienhard, *Engines of Our Ingenuity No. 1701: Sewing Machines*, UNIV. OF HOUSTON, http://www.kuhf.org/programaudio/engines/eng1701_64k.m3u (“Sewing machines took the country by storm and changed American life.”); see also Marguerite Connolly, *The Disappearance of the Domestic Sewing Machine, 1890–1925*, 34 WINTERHUR PORTFOLIO 31, 31 (1999) (“When the domestic sewing machine was introduced to American homes in the 1850s, it was heralded as a mechanical wonder that would transform the lives of women.”).

⁸ See Connolly, *supra* note 7, at 33 (“Women could spend less time and labor on sewing and concentrate on other important tasks . . .”).

⁹ Isaac Merrit Singer (1811–1875): *Sewing Machine*, LEMELSON-MIT PROGRAM, <http://web.mit.edu/invent/iow/singer.html> (“Singer’s version of the sewing machine was

what became the very first patent pool.¹⁰ Among other things, Singer formed The Singer Sewing Machine Company—a company that continues to exist to this day¹¹—to help commercialize that technology.¹² Singer joined a few others who held key patents on sewing machine technology to create the pool, and they then did what people do when they create patent pools: they set out to license the patents to companies wishing to manufacture sewing machines.¹³

Another development that was just beginning to transform farming communities was the advent of the use of sales catalogues by large retailers. Aaron Montgomery Ward created the first catalogue in 1872,¹⁴ and could perhaps be regarded as a Jeff Bezos of his day.¹⁵ Working in collaboration with local farming cooperatives, Ward began selling products, such as sewing machines, directly to people in rural homes across the country through his sales catalogue.¹⁶ Customers would order products

the first to allow continuous and curved stitching, with an overhanging arm that held the needle bar over a horizontal table.”).

¹⁰ Joseph Scott Miller, *Standard Setting, Patents, and Access Lock-In: RAND Licensing and the Theory of the Firm*, 40 IND. L. REV. 351, 386–87 (2007).

¹¹ See *Company*, SINGER SEWING COMPANY, <http://www.singerco.com/company> (last visited Jan. 22, 2013) (“Since 1851, the name Singer has been synonymous with sewing.”); *Isaac Merrit Singer (1811–1875): Sewing Machine*, *supra* note 9.

¹² See *Isaac Merrit Singer (1811–1875): Sewing Machine*, *supra* note 9 (“In late 1857, Singer opened the world’s first mass production facility for something other than firearms in New York.”).

¹³ See Miller, *supra* note 10, at 387 (“Each agreed to pay a fixed fee for every machine sold, in return for a license to all the patents in the pool.”); Adam Mossoff, *The Rise and Fall of the First American Patent Thicket: the Sewing Machine War of the 1850s*, 53 ARIZ. L. REV. 165, 168 (2011) (“The sewing machine was the result of numerous incremental and complementary inventive contributions, which led to a morass of patent infringement litigation given overlapping patent claims to the final commercial product.”).

¹⁴ Stephen Franklin, *Founder a Force in Retail, Civic Affairs*, CHI. TRIBUNE (Dec. 29, 2000), http://articles.chicagotribune.com/2000-12-29/news/0012290161_1_aaron-montgomery-ward-mail-order-catalog-division.

¹⁵ See *Jeffrey P. Bezos*, N.Y. TIMES, http://topics.nytimes.com/top/reference/timestopics/people/b/jeffrey_p_bezos/index.html (last visited Jan. 22, 2013) (discussing the revolutionary idea of Jeffrey P. Bezos, the founder and president of Amazon.com, for an online bookstore).

¹⁶ See Franklin, *supra* note 14 (“[Ward’s dream] panned out, too, for rural America, where it was . . . possible to find the legions of items listed in the Montgomery Ward catalog . . .”).

through the catalogue, the products would be shipped by rail, and customers would then pick up their purchases at the local railroad station.¹⁷

Ward, however, was not a fan of the sewing machine patent pool.¹⁸ This is because he was selling sewing machines through his catalogues that were in effect knockoffs of the patented machines.¹⁹ He sold his machines to farmers across the Midwest for about half the price of patent pool's sewing machines.²⁰

There ensued a political uproar that in many respects was more impactful and more dramatic than the debate that erupted last year around SOPA. As the patent owners in the sewing machine patent pool sought to enforce their patents, Ward turned to farm politics.²¹ Ward sold his products to various farming cooperatives, one of the most important of which was called 'The Grange.'²² Ward perceptively recognized that the members of the Grange could be turned into a political force²³—and in fact, that group became known as the Granger Movement in U.S. politics.²⁴ In 1874, the Granger Movement set out, among other things, to influence the congressional election²⁵ and to change U.S. patent laws in a very specific way.²⁶

¹⁷ See *id.*

¹⁸ See STEVEN W. USSELMAN, REGULATING RAILROAD INNOVATION: BUSINESS, TECHNOLOGY, AND POLITICS IN AMERICA, 1840–1920 147 (detailing how Ward “reacted with outrage” when Congress extended the patents).

¹⁹ See *id.*

²⁰ See *id.* (“Machines made under license from Elias Howe and Isaac Singer sold for \$70 or \$80, whereas those manufactured illicitly cost half as much.”).

²¹ See Louis P. Cain, *A Canal and Its City: A Selective Business History of Chicago*, 11 DEPAUL BUS. L.J. 125, 164 (1998).

²² *Id.*

²³ *Id.*

²⁴ See SOLON JUSTUS BUCK, THE GRANGER MOVEMENT: A STUDY OF AGRICULTURAL ORGANIZATION AND ITS POLITICAL, ECONOMIC, AND SOCIAL MANIFESTATIONS, 1870–1880 3 (Univ. Neb. Press 1963) (describing how the Grange, which began as social society, evolved into a political force that became known as the “Granger Movement”).

²⁵ See *id.* at 95–98 (discussing the Granger Movement's successes in the 1874 elections).

²⁶ *Id.* at 118–19 (“The reforms proposed [by the Movement] were mainly of three sorts: the limitation of the life of patents and the prevention of their extension by renewals; the establishment of a fixed royalty with permission to anyone to manufacture patented articles upon the payment of such royalty; and finally, the protection of the

Even though women did not yet have the right to vote, they were, not surprisingly, very influential with many men who did. The Granger Movement therefore opened its doors to women and as a result, Granger membership rose dramatically.²⁷ Its political clout grew equally dramatically and, in effect, changed the outcome of the 1874 congressional election.²⁸ In fact, it helped the Democratic Party regain its majority in the House of Representatives for the first time since before the Civil War.²⁹

One of the first acts of the new Congress in 1875 was to pass legislation that would effectively end the most valuable patent in the sewing machine patent pool, a patent that had been extended by an act of Congress in 1872.³⁰ This legislation was accompanied by a public messaging campaign that was, to put it kindly, not thin on hyperbole. Supporters of the patent reform legislation claimed that the sewing machine patents had created a system of white slavery by forcing farmers across the Midwest to make payments to the rich patent owners.³¹

Intellectual property scholars often focus on interdisciplinary study—law and economics, law and politics, law and sociology, and so on. In my view, one of the most important interdisciplinary techniques when it comes to intellectual property is law and history. As the sewing machine debates of the 1870s illustrate,

‘innocent purchaser or user of a patented article,’ making the manufacturer or vendor alone responsible for violations of the law.”).

²⁷ See *id.* at 281 (“It seems to be a fact that the Grange was the first secret order to admit women to full and equal membership. If there was any inequality, indeed, it was in favor of the women, for part of the offices were reserved especially for them, while the remainder were open equally to both sexes.”).

²⁸ See *id.* at 95–98.

²⁹ RECONSTRUCTION 1865–1877 154 (Richard N. Current ed., Prentice-Hall, Inc., 1965).

³⁰ See BUCK, *supra* note 24, at 119 (“Although the attempt to secure general reform of the patent laws thus came to naught, the Patrons appear to have been more successful in dealing with individual cases, and the claim is made that the influence of the Grange prevented the extension of patents on sewing-machines.”).

³¹ See Earl W. Hayter, *The Patent System and Agrarian Discontent, 1875–1888*, 34 MISS. VALLEY HIST. REV. 59, 63 (1947) (“To the American farmer all monopolies were anathema, and to have them develop on essential farm equipment and household articles was no better than were those of the railroads, so they denounced both with equal vigor.”).

history permits us to place contemporary IP debates in context. They help us see how current conflicts are often simply replaying debates that have occurred in the past, often many times over.

In fact, on repeated occasions in our history, major technological changes initially upset the intellectual property laws of the time. This was true not only of the sewing machine, but also of George Westinghouse's airbrake for railway cars and the battle that ensued with the railroads;³² of the telegraph and the telephone and the challenges to Alexander Graham Bell;³³ of the airplane in the patent battle between the Wright Brothers and Glenn Curtiss, who created the second biggest airplane company in the United States;³⁴ of radio;³⁵ and, to some extent, of television as well.³⁶ Today we see it anew in various guises, and we are tempted to think we are witnessing something truly unique. But in fact, it is really just another chapter in a very long book. And if we look closely, we see that each chapter in this book almost inevitably repeats the same three themes.

The first theme is that major advances in technology often result in clashes that reflect, in essence, an effort to strike a balance

³² See *Boyden Power-Brake Co. v. Westinghouse*, 170 U.S. 537, 583 (1898) (establishing the "Doctrine of Equivalents" as a shield to protect Boyden's brake from constituting infringement). For a discussion of the doctrine of equivalents, see George M. Sirilla, Thomas P. Feddo, & Michael C. Antone, *The Doctrine of Equivalents: Both a Sword and a Shield*, 13 Fed. Cir. B.J. 75 (2003).

³³ See *Dolbear v. Am. Bell Tel. Co.*, 8 S. Ct. 778, 782 (1888) (upholding Bell's patent for transmission of sounds via electric currents—which would have been considered too broad and abstract under existing case law); see also Tun-Jen Chiang, *Defining Patent Scope by the Novelty of the Idea*, 89 Wash. U. L. Rev. 1211, 1229–31 (2012) (contrasting the holding in the *Dolbear* case and the Supreme Court's prior holding in the *Morse* case).

³⁴ See George Bittlingmayer, *Property Rights, Progress, and the Aircraft Patent Agreement*, 31 J.L. & ECON. 227, 231–32 (1988) (describing the dispute and resolution); Ted Sabety, *Nanotechnology Innovation and the Patent Thicket: Which IP Policies Promote Growth?*, 15 ALB. L.J. SCI. & TECH. 477, 496 n.104 (2005) ("Because the Wright Brothers' and Curtiss's patents were blocked and cross-licensing had yet to gain popularity, this prevented effective military aircrafts from being built in WWI.").

³⁵ Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 892–93 (1990) ("Radio is thus a canonical instance where the presence of a number of broad patents, which were held by different parties and were difficult to invent around, interfered with the development of the technology.").

³⁶ See *id.* at 864.

between the interests of the inventors of the new technology and the competitors that follow in the inventor's footsteps. Whether it is the Wright Brothers and Glenn Curtiss, or Steve Jobs and Android, or the people who invented the sewing machine and others who manufactured it, there is typically a battle that ensues, pitting two groups against each other. The battle is typically followed by various efforts to find a middle ground.

Second, as the initial battle is playing itself out, it often evolves into, or is portrayed as, a battle between the interests of creators and the interests of consumers. Montgomery Ward achieved that result to great effect in the sewing machine patent debate of the 1870s, and one can see echoes of this phenomenon in the more recent debates around SOPA.

The third theme is a question that must be addressed ultimately by lawmakers, judges, and lawyers—namely, what is the best field of intellectual property law in which to advance certain public policy goals? Is it copyright or is it patent? Or is it trademark or trade secret? While the arguments vary by technology and context, the point is that battles and issues tend to spill over from one form of intellectual property law to another.

II. EVOLUTION OF INTELLECTUAL PROPERTY PROTECTION OF SOFTWARE

One can see evidence of these three themes in a more recent example—the evolution of intellectual property protection for software. For years, judges and legislators have struggled to find the proper balance between protecting incentives for innovation in software development and encouraging competition.³⁷ Due to the dynamic nature of software innovation, finding that balance has

³⁷ See, e.g., *Lotus Dev. Corp. v. Borland Int'l, Inc. (Borland II)*, 49 F.3d 807, 820 (1st Cir. 1995) (“Applying copyright law to computer programs is like assembling a jigsaw puzzle whose pieces do not quite fit.”); *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 46 (D. Mass. 1990) (“One difficulty . . . is the amorphous nature of ‘nonliteral’ elements of computer programs.”); *Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc.*, 797 F.2d 1222, 1238 (3d Cir. 1986) (“In balancing protection and dissemination . . . the copyright law has always recognized and tried to accommodate the fact that all intellectual pioneers build on the work of their predecessors.”).

not always been easy. In the end, legislatures and courts around the world have generally chosen policies that effectively balance the goals of protecting consumers, promoting competition, and spurring innovation.³⁸

In this section, I explore how judges and lawmakers approached two important issues that have helped shape the software industry: 1) whether advances in software innovation should be protected by copyright or patent law; and 2) whether software owners should have an exclusive right over the rental of their software.

A. Copyright or Patent?

Courts struggled for years to determine whether copyright or patent law protects advances in software. For instance, as recently as 1986, the United States Court of Appeals for the Third Circuit, in *Whelan v. Jaslow*, concluded that copyright law was the appropriate area of IP law to protect what were considered non-literal elements of a software program.³⁹ The court held that copyright law protects not only the literal code itself, but also the “structure, sequence, and organization” of a software program.⁴⁰ In defending its decision, the court stated that it was “not convinced that progress in computer technology or technique is qualitatively different from progress in other areas of science or the arts.”⁴¹

Six years later, the Second Circuit disagreed. In *Computer Associates International, Inc. v. Altai, Inc.*, the court concluded that the Third Circuit’s “approach to separating idea from expression in computer programs relies too heavily on metaphysical distinctions and does not place enough emphasis on practical considerations.”⁴² The court added that the “indiscriminating availability” of copyright protection renders it

³⁸ See, e.g., Dennis S. Karjala, *Protecting Innovation in Computer Software, Biotechnology, and Nanotechnology*, 16 VA. J.L. & TECH. 42 (2011).

³⁹ *Whelan Assocs., Inc.*, 797 F.2d at 1248.

⁴⁰ *Id.*

⁴¹ *Id.* at 1238.

⁴² 982 F.2d 693, 706 (2d Cir. 1992).

ill-suited “to deal with the highly dynamic technology of computer science.”⁴³

In 1996, the issue finally reached the Supreme Court in a case involving the pioneering software program Lotus 1-2-3.⁴⁴ When Lotus 1-2-3 became the ubiquitous spreadsheet program of the era, other companies began creating spreadsheet programs that, among other things, copied the entire menu structure of that software program.⁴⁵ Focused on protecting its market share against these attacks, Lotus sued.⁴⁶

Lotus won its first case, defeating Paperback Software International.⁴⁷ Lotus then sued Borland International, Inc., a company that tried to get around the *Paperback* decision by not displaying the menu structure of Lotus 1-2-3 on the screen, but instead using an emulator that made the program feel similar in operation for people who were familiar with Lotus menu structure commands.⁴⁸ Despite the similarities between the Paperback and Borland programs, however, the First Circuit ruled that copyright law did not protect Lotus against Borland’s form of copying.⁴⁹ In a concurring opinion, Judge Michael Boudin wrote that Lotus was attempting to use copyright law for something that was better suited for patent law, namely, protecting non-literal inventions, which he considered to be methods of operation and therefore outside the scope of the copyright law.⁵⁰ Applying copyright law to software, Judge Boudin wrote, “is like assembling a jigsaw puzzle whose pieces do not quite fit.”⁵¹ The Supreme Court granted certiorari in the case, but with one Justice recused, the

⁴³ *Id.* at 712.

⁴⁴ Lotus Dev. Corp. v. Borland Int’l, Inc. (*Borland III*), 516 U.S. 233 (1996). For the First Circuit’s description of the Lotus 1-2-3 software, see *Borland II*, 49 F.3d 807, 809–10 (1st Cir. 1995).

⁴⁵ See Lotus Dev. Corp. v. Borland Int’l, Inc. (*Borland I*), 831 F. Supp. 202, 207 (D. Mass. 1993); Lotus Dev. Corp. v. Paperback Software Int’l, 740 F. Supp. 37, 63 (D. Mass. 1990).

⁴⁶ *Borland I*, 831 F. Supp. at 206; *Paperback Software Int’l*, 740 F. Supp. at 42.

⁴⁷ *Paperback Software Int’l*, 740 F. Supp. at 84.

⁴⁸ *Borland II*, 49 F.3d at 810.

⁴⁹ *Id.* at 819.

⁵⁰ *Id.* at 820 (Boudin, J., concurring).

⁵¹ *Id.*

Court's decision ended in a 4-4 draw, which for practical purposes affirmed the First Circuit's ruling against Lotus.⁵²

The *Borland* case sent a clear message to those of us who were working in the industry at the time: the days of copyright law protecting higher-level innovations in computer software were numbered. That message became even clearer when the Supreme Court,⁵³ Federal Circuit,⁵⁴ and U.S. Patent and Trademark Office all ruled, in responses to various patent applications and cases, including one brought by IBM, that patent law can indeed be used to protect otherwise non-patentable inventions in computer software if the inventions are combined in such a way as to become a practical application.

This evolution in IP law as it applies to software provides an important lesson. Although attorneys sometimes think of themselves specifically as "patent lawyers," "copyright lawyers," or "trademark lawyers," real world IP issues sometimes "jump the rails" from one form of IP protection to another. It can be challenging to take stock of all of the factors at play and to reach sound judgments unless one has a strong familiarity with all of the core IP fields.

The decision to protect computer-implemented inventions under patent law unleashed many new challenges for the patent system. Specifically, courts, regulators, and practitioners sought to adapt patent law to innovations in software, while other fields, including online computing, began to change the nature of technological advances in this area. This too is something we have seen time and time again over the last 150 years.⁵⁵

⁵² *Borland III*, 516 U.S. 233, 233 (1996).

⁵³ *Diamond v. Diehr*, 450 U.S. 175, 187 (1981) ("[A] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program, or digital computer.").

⁵⁴ *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998) (holding that "a mathematical algorithm, formula, or calculation" that "produces 'a useful, concrete and tangible result'" is a practical application).

⁵⁵ See generally Nancy T. Gallini, *The Economics of Patents: Lessons from Recent U.S. Patent Reform*, 16 J. ECON. PERSPECTIVES 131, 145-48 (2002); Josh Lerner, *150 Years of Patent Protection*, 92 AM. ECON. REV. 221, 222 (2002); John M. Augustyn, *Sweeping Changes Come to U.S. Patent Law*, CHICAGO DAILY LAW BULLETIN, Nov. 15, 2011, available at http://www.leydig.com/files/jma_law_bulletin_official_112111.pdf.

B. *Software Rental Policies*

In addition to the courts, legislatures have played a vital role in shaping intellectual property protection for software. One key change occurred in 1990, when the U.S. Congress amended the Copyright Act to give software publishers an exclusive rental right.⁵⁶

The software industry convinced Congress to extend this exclusive right by engaging in the policy discussion with a sophisticated sense of the politics surrounding the issue.⁵⁷ The industry effectively demonstrated to lawmakers that the unrestricted ability to rent software could harm software creators to such a degree that it would discourage companies from investing in the creation of new technology.⁵⁸ In other words, the software industry convinced policymakers that unregulated software rentals would weaken innovation and ultimately harm consumers. Congress listened and agreed.⁵⁹

⁵⁶ Computer Software Rental Amendments Act of 1990, 17 U.S.C. § 109 (2006) (“[U]nless authorized by . . . the owner of copyright in a computer program (including any tape, disk, or other medium embodying such program) . . . [a] person in possession of a particular copy of a computer program (including any tape, disk, or other medium embodying such program), may, for the purposes of direct or indirect commercial advantage, dispose of, or authorize the disposal of, the possession of that . . . computer program (including any tape, disk, or other medium embodying such program) by rental, lease, or lending, or by any other act or practice in the nature of rental, lease, or lending.”).

⁵⁷ See Paul Andrews, *Pirates on the PCs—Illegal Copying of Software Programs Costing Companies Billions*, SEATTLE TIMES (Feb. 26, 1990), <http://community.seattletimes.nwsourc.com/archive/?date=19900226&slug=1058238> (“Led by the Software Publishers Association and the Business Software Alliance, leading trade groups based in Washington, D.C., the industry has embarked on a legal and public-awareness campaign against illegal copying, as it is done both internationally and domestically.”); see also Copyright Amendments Act of 1990, H.R. REP. NO. 101-735, at 6939 (1990) (noting that Congress had been presented with “compelling” evidence of the harm of software rentals by the computer software industry).

⁵⁸ Copyright Amendments Act of 1990, H.R. REP. NO. 101-735 at 6939 (1990) (“Rental of software will, most likely, encourage unauthorized copying, deprive copyright owners of a return on investment, and thereby discourage creation of new products.”).

⁵⁹ See Computer Software Rental Amendments Act of 1989, S. REP. NO. 101-265 (1990) (recommending that the Software Rental Amendments Act be passed); see also Copyright Amendments Act of 1990, H.R. REP. NO. 101-735, at 6935 (1990).

Interestingly, Congress did not provide movie producers with a similar exclusive rental right.⁶⁰ In my view, the reason for this differential treatment is simple: consumer expectations. By the time the rental right was being debated, video stores had sprung up across the United States. Because millions of consumers had already purchased VCRs, it would not have been politically viable for Congress to prohibit all video rentals—the consumer reaction would have been deafening. Yet Congress was able to establish such a right for software because people were not yet renting computer programs on a similar scale. As consumer expectations on software rentals had not yet been shaped or framed, the political ability to create a sensible policy was broad.

The development and passage of the rental right for software teaches that although intellectual property law can affect technology consumption, it is equally true that technology consumption can affect intellectual property law. Just as the Granger Movement influenced patent law in the 1870s, public sentiment has helped shape intellectual property protection.

III. CURRENT ISSUES IN INTELLECTUAL PROPERTY REFORM

A. *Cries of Battle, and Inching Toward Solutions*

As I noted at the outset, a careful reading of IP history shows that, just as IP laws influence technology innovation, technology innovation can have a major impact on the development of intellectual property policies. More recently, there seems to be a new patent lawsuit over a smartphone every week.⁶¹ To put this in context, however, patent wars such as these typically begin with the sparks and fireworks of litigation—and they typically end with the embers of licensing.

⁶⁰ See 17 U.S.C. § 106 (2006) (granting exclusive rights for, among others, sound recordings, literary works, and choreographic works but not for movie rental rights); see also Computer Software Rental Amendments Act of 1989, S. REP. NO. 101-265 (1990) (discussing characteristics of computer program rentals which made exclusive rental rights appropriate in that market but which did not apply to video cassette rentals).

⁶¹ See Colleen V. Chien, *A Race to the Bottom*, IAM MAGAZINE, Nov. 29, 2011, at 10 (describing the “patent arms race” among smartphone makers).

Microsoft has been focused principally on licensing patents for a reasonable royalty rather than on litigation and efforts to secure injunctive relief.⁶² To some degree, this approach is based on the way these issues have worked out historically. If some form of commercial agreement (i.e., licensing) is likely the eventual solution, a company that can lead its industry in that direction, avoiding the legal wrangling that would ensue in the meantime, is one that does right by its constituents. In some sense, the transition from initial conflict to litigation to licensing is simply a working out of the interests between the first inventor and follow-on competitors, which was the first theme discussed in this essay.

These battles will continue to shape the direction of technology. As they do so, they will undoubtedly present courts, lawmakers, and agencies with many new questions about intellectual property. Thus, further policy and legal changes are inevitable. That process is both multifaceted and incremental.

The process is multifaceted in that it typically involves a combination of steps by courts, legislatures, the Executive Branch, and even by those in the industry who resolve some of the issues through licensing.⁶³ For instance, consider that in the time it took the U.S. Congress to consider, debate, and pass its recent patent reform legislation, the America Invents Act,⁶⁴ a long and important series of court decisions effectively whittled down the list of issues that concerned those who initially supported the legislation.⁶⁵ By taking a new look at the standard for injunctions in patent infringement actions,⁶⁶ the standard for willful infringement,⁶⁷ and

⁶² See Charles Arthur, *What if Patent Fees for Android Cost as much as Licensing Windows Phone?*, GUARDIAN (July 7, 2011), <http://www.guardian.co.uk/technology/2011/jul/07/windows-phone-android-patent-seeking> (describing Microsoft's patent licensing strategy).

⁶³ See Chien, *supra* note 61, at 16–17 (describing several different reform proposals).

⁶⁴ Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.).

⁶⁵ *Review of Recent Judicial Decisions on Patent Law: Hearing Before the H. Subcomm. on Intellectual Property, Competition, and the Internet*, 112th Cong. 112-20 (2011) (statement of Andrew J. Pincus).

⁶⁶ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006) (holding that in patent infringement actions courts must decide whether to grant a permanent injunction based on “well-established principles of equity” rather than grant them as a general rule).

the standard for obviousness,⁶⁸ for example, courts, through case law, addressed a number of the issues that had prompted calls for reform in the first place.

The process is incremental in that it typically involves a series of small steps, rather than one giant leap, as was seen in the recent patent reform legislation.⁶⁹ Indeed, the patent reform debate demonstrates the incremental nature of intellectual property change generally. Microsoft was one of the first companies to call for patent reform legislation in Congress in 2005.⁷⁰ During a speech that I delivered in Washington, D.C. around that time, someone asked, “How long do you think it will take to get this done?” I responded, “Well, if you look at history, it should take about six years. That’s what it usually takes to really raise a patent issue and get it addressed in a significant way.”⁷¹ Indeed, the complete set of issues is seldom resolved in less than a decade. If you are an IP lawyer and it is the beginning of such a decade, there is much to look forward to in the ten years ahead.

In the last decade in the United States, there has been a significant focus on intellectual property legislation in Congress, just as there was during the sewing machine patent debates. One thing typically seen in such situations is that, when a large list of issues is presented to Congress, it takes a long time for Congress to work through them. Further, while Congress is working through them, the courts are paying attention and making incremental changes to the law on their own.

⁶⁷ *In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (holding that “proof of willful infringement permitting enhanced damages requires at least a showing of objective recklessness”).

⁶⁸ *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 419 (2007) (rejecting a “narrow conception of the obviousness inquiry”).

⁶⁹ Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.).

⁷⁰ Interview with Brad Smith, Senior Vice President, General Counsel and Corporate Secretary, Microsoft Corporation, in Washington, D.C. (Mar. 10, 2005), *available at* <http://www.microsoft.com/en-us/news/features/2005/mar05/03-10patentreform.aspx>.

⁷¹ Brad Smith, *Improvements to the Global Patent System Start at Home*, MICROSOFT NEWS CENTER (Mar. 10, 2005), <http://www.microsoft.com/en-us/news/exec/bradsmith/03-10-05aeipatentreform.aspx>.

B. A Selection of Current IP Issues

In 2013, the U.S. Congress will confront an extraordinarily wide range of intellectual property topics, including standard essential patents,⁷² online piracy,⁷³ patent trolls,⁷⁴ and trade secrets.⁷⁵ It is worth noting the key issues that will likely emerge in these debates, and the factors that Congress will likely consider as it strives to balance the interests of intellectual property owners, competitors, and consumers.

1. Standard Essential Patents

Twenty years ago, policymakers and industry leaders worldwide engaged in a spirited debate over the proper scope of copyright exceptions for reverse-engineering and decompilation of software—issues that were considered critical to promoting interoperability and preventing conduct that could frustrate competition in information technology markets. In fact, in 1991, *The Financial Times* reported on the “strenuous” lobbying at the

⁷² Brendan Sasso, *Dem Warns FTC Against Suing Google*, THE HILL (Oct. 15, 2012, 10:30 AM), <http://thehill.com/blogs/hillicon-valley/technology/262015-democrat-warns-congress-could-limit-ftcs-power-if-it-sues-google> (discussing Representative Jared Polis’ warning to the Federal Trade Commission to avoid suing Google under antitrust laws, or face Congressional backlash).

⁷³ See Ryan J. Reilly, *Zoe Lofgren Introduces “Aaron’s Law” to Honor Swartz on Reddit*, THE HUFFINGTON POST (Jan. 15, 2013, 11:24 PM), http://www.huffingtonpost.com/2013/01/15/zoe-lofgren-aarons-law-swartz_n_2483770.html (discussing Representative Lofgren’s proposed legislation to curb the broad scope of the Computer Fraud and the Abuse Act (CFAA)); Gary Shapiro, *It’s Time for a Fresh Look at Copyright Laws*, FORBES (Jan. 30, 2013, 2:43 PM), <http://www.forbes.com/sites/garyshapiro/2013/01/30/its-time-for-a-fresh-look-at-copyright-laws/>.

⁷⁴ See Joe Mullin, *CES Looks for Solutions to the Patent Troll Toll*, ARSTECHNICA (Jan. 8, 2013), <http://arstechnica.com/tech-policy/2013/01/ces-looks-for-solutions-to-the-patent-troll-toll/> (“[Rep. Peter DeFazio] co-sponsored an anti-patent-troll bill last year called the SHIELD Act, and has plans to introduce a modified version of it in the new Congress.”).

⁷⁵ See Thomas Dye, *Congress Acts To Strengthen Federal Trade Secret Protection*, JD SUPRA LAW NEWS, Jan. 16, 2013, <http://www.jdsupra.com/legalnews/congress-acts-to-strengthen-federal-trad-44883/> (“On December 29, 2012, President Obama signed into law the Theft of Trade Secrets Clarification Act of 2012 . . . which broadens the scope of the Economic Espionage Act of 1996 A related law, the Foreign Economic Espionage Penalty Enhancement Act of 2012, which increases penalties for misappropriating trade secrets, is expected to be enacted soon.”).

European Commission, Parliament, and Council of Ministers over reverse-engineering and decompilation.⁷⁶ Today, although those interoperability issues have been largely resolved, in many ways the debate has taken a new form over the appropriate relief in disputes involving standard essential patents (SEPs).⁷⁷

There has been much debate over the practices of companies that hold SEPs and attempt to ban sales of products from suppliers that have not agreed to the SEP owner's licensing demands.⁷⁸ Policymakers are eager to ensure that these sales bans do not thwart competition or violate the SEP owner's promise to license these patents on fair, reasonable, and nondiscriminatory terms.⁷⁹ For instance, in early January 2013, the FTC adopted a consent decree with Google that requires the company to take a number of steps designed to ensure that its SEP licensing demands are truly fair, reasonable, and non-discriminatory before it can seek an injunction or exclusion order on such patents.⁸⁰ Less than a week later, the U.S. Department of Justice and Patent and Trademark Office issued a joint statement discouraging standard-essential patent holders from seeking injunctive relief at the ITC.⁸¹ The

⁷⁶ Michael Blanden, *Technology: Plagiarism, Piracy and Profit—The Thorny Question of Intellectual Property Copyright in Software has Seen Strenuous Lobbying of Brussels by All Parties*, FIN. TIMES, Sept. 1, 1991.

⁷⁷ See generally Thomas H. Chia, *Fighting the Smartphone Patent War with RAND-Encumbered Patents*, 27 BERKELEY TECH. L. J. 209, 239–40 (2012).

⁷⁸ See Liz Gannes, *What Happens Now on Standards-Essential Patents?*, ALL THINGS DIGITAL (Jan. 4, 2013), <http://allthingsd.com/20130104/what-happens-now-on-standard-essential-patents/> (noting SEPs have become an issue in competition between industries including smartphone manufacturing); Brad Reed, *DOJ Tells Companies to Stop Seeking Sales Bans for Standard Essential Patents*, BGR (Jan. 9, 2013, 5:40 PM), <http://bgr.com/2013/01/09/doj-opposes-sales-bans-over-standard-essential-patents-286478> (noting the DOJ and PTO released joint guidance on SEP owner's licensing demands).

⁷⁹ See Gannes, *supra* note 78 (noting SEPs were a part of the FTC's investigation of Google); Reed, *supra* note 78 (the DOJ and PTO issued a joint statement saying companies should be entitled to modest monetary compensation for the use of their SEPs).

⁸⁰ Press Release, Fed. Trade Comm'n, Google Agrees to Change Its Business Practices to Resolve FTC Competition Concerns in the Markets for Devices Like Smart Phones, Games and Tablets, and in Online Search (Jan. 3, 2013), *available at* <http://www.ftc.gov/opa/2013/01/google.shtm>.

⁸¹ Press Release, U.S. Dept. of Justice and U.S. Patent & Trademark Office, Policy Statement on Remedies for Standards-Essential Patents Subject to Voluntary F/RAND

agencies expressed concern that SEP holders could assert their patents “to exclude a competitor from a market or obtain a higher price for its use than would have been possible before the standard was set, when alternative technologies could have been chosen.”⁸² And only a few days before the FTC’s Google decision, in announcing the issuance of a preliminary Statement of Objections against Samsung, European Commission Vice President Joaquín Almunia referred to such tactics as a form of patent “hold-up” because “access to those patents which are standard-essential is a precondition for any company to sell interoperable products in the market.”⁸³

Since standards play such an essential role in the advancement of interoperability, we expect this vigorous debate to continue. Policymakers have clearly recognized that abuse of these SEPs poses a serious risk to competition and, ultimately, harms consumers.

2. Online Piracy

Although the debate over SEPs has to some extent been confined to intellectual property circles, tens of millions of Americans know about SOPA. Indeed, few IP proposals in recent memory have attracted more public attention than SOPA. The legislation, which was intended to reduce online piracy, would have authorized federal law enforcement officials to block access to websites that systematically violate copyrights.⁸⁴

Opponents of SOPA—a wide-ranging coalition of free speech advocates, technology companies, and others—organized a fierce and swift opposition campaign. Popular websites, including

Commitments (Jan. 8, 2013) (“Standards, and particularly voluntary consensus standards set by standards-developing organizations (SDOs), have come to play an increasingly important role in our economy.”).

⁸² *Id.*

⁸³ Press Release, European Comm’n, Antitrust: Commission Sends Statement of Objections to Samsung on Potential Misuse of Mobile Phone Standard-Essential Patents (Dec. 21, 2012).

⁸⁴ Stop Online Piracy Act, H.R. 3261, 112th Cong. (1st Sess. 2011) (“[T]he Internet site would . . . be subject to seizure in the United States in an action brought by the Attorney General if such site were a domestic Internet site.”).

Wikipedia, shut down for a day in protest of the legislation, and millions of people signed anti-SOPA petitions.⁸⁵ Within days after the protest was launched, sponsors of the bill acknowledged that it would not pass.⁸⁶

Millions of Americans opposed SOPA, and not just because Wikipedia went dark for a day. They were concerned that the legislation would have changed the way links work on the Internet.⁸⁷ One of the defining features of the Internet, of course, is the ability to click on any link and to go to whatever site the link connects to, regardless of where that site is located or the content of that site. SOPA opponents were successful because they convinced consumers that, if SOPA passed, some links on the Internet would no longer work and the vitality of the Internet therefore would be undermined.⁸⁸ Just as consumers were accustomed to purchasing reasonably priced sewing machines in the 1870s and in renting movies in the 1980s, they expect unfettered access to the Internet today. Because SOPA opponents were able to convince American consumers that their settled expectations of the Internet would be frustrated, they were able to mobilize massive popular opposition to the legislation.

Indeed, SOPA is a perfect example of a concept known as the “consumerization of IT.” Consumers vote in many different ways. Consumers vote with the websites they visit, the links that they click, and with the products that they buy. Consumers also vote with their ballots. The defeat of SOPA demonstrates that

⁸⁵ Jenna Wortham, *Wikipedia to Go Dark on Wednesday to Protest Bills on Web Piracy*, N.Y. TIMES (Jan. 16, 2012, 5:00 PM), <http://bits.blogs.nytimes.com/2012/01/16/wikipedia-plans-to-go-dark-on-wednesday-to-protest-sopa>.

⁸⁶ Press Release, House Judiciary Committee Chairman Lamar Smith, Statement from Chairman Smith on Senate Delay of Vote on PROTECT IP Act (Jan. 20, 2012), <http://judiciary.house.gov/news/01202012.html> (stating that it was “clear that we need to revisit the approach” pursued by PIPA and SOPA).

⁸⁷ Amy Schatz, *What is SOPA Anyway? A Guide to Understanding the Online Piracy Bill*, WALL ST. J. TECH. BLOG (Jan. 18, 2012), <http://online.wsj.com/article/SB10001424052970203735304577167261853938938.html>.

⁸⁸ Jennifer Martinez, “Shell-Shocked” Lawmakers Shy Away from Online Piracy in New Congress, THE HILL TECH. BLOG (Jan. 6, 2013, 6:00 AM), <http://thehill.com/blogs/hillicon-valley/technology/275761-shell-shocked-lawmakers-shy-away-from-online-piracy-in-new-congress>.

American consumers care deeply about their access to technology, and that lawmakers listen to them.

Yet one probably should not expect the debate about online piracy to fade into the night. Piracy of music, movies, software, and other intellectual property remains a serious and persistent problem.⁸⁹ Although SOPA was fatally flawed, policymakers have identified a number of other options to reduce online piracy. For example, the Administration's Intellectual Property Enforcement Coordinator's 2010 Joint Strategic Plan calls for industry-driven voluntary best practices aimed at identifying practical and efficient steps to help deal with sources devoted to online distribution of pirate and counterfeit goods.⁹⁰

3. Patent Trolls

Like online piracy, the threat of patent infringement lawsuits by so-called "patent trolls" evokes heated debate among intellectual property lawyers and legislators. Also known as "non-practicing entities" or "patent assertion entities," (PAEs) these companies typically do not invest in research and development, provide services, or produce goods.⁹¹ Rather, they secure a portfolio of patents, and then sue companies that they believe have infringed those patents.⁹² The patent troll debate first received widespread public attention when a patent infringement lawsuit caused the temporary shutdown of all Blackberry service nationwide.⁹³

⁸⁹ See Zbigniew J. Bednarz, *Unreal Property: Vernor v. Autodesk, Inc. and the Rapid Expansion of Copyright Owners' Rights by Granting Broad Deference to Software License Agreements*, 61 DEPAUL L. REV. 939, 940 (2012) ("Modern piracy on the information superhighway is much more economically dangerous than piracy on the high seas because it happens extremely rapidly, on a very large scale, and virtually anonymously.").

⁹⁰ EXECUTIVE OFFICE OF THE PRESIDENT, 2010 JOINT STRATEGIC PLAN ON INTELLECTUAL PROPERTY ENFORCEMENT at 13 (2010).

⁹¹ Wei Wang, *Non-Practicing Complainants at the ITC: Domestic Industry or Not?*, 27 BERKELEY TECH. L.J. 409, 417, 421 (2012).

⁹² *Id.* at 421.

⁹³ See Gerard N. Magliocca, *Blackberries and Barnyards: Patent Trolls and the Perils of Innovation*, 82 NOTRE DAME L. REV. 1809, 1809 (2007).

A recent Cato Institute study found that in 2010, U.S. firms were the targets of infringement lawsuits by patent trolls on over 2,600 occasions, a roughly 500 percent increase from 2004.⁹⁴ The study estimated that patent troll suits caused defendants to lose half a trillion dollars in wealth from 1990 to 2010.⁹⁵ The authors concluded that the defendants “are firms that already invest a lot in innovation,” and these losses “make it more expensive for them to continue to do so and it also makes them less willing to license new technologies from small inventors.”⁹⁶

Industry and policymakers have begun to consider possible approaches to address these concerns. Among proposals under discussion are amendments to Sec. 337 of the Trade Act to address the rising tide of suits by PAEs at the International Trade Commission (ITC).⁹⁷ Specific recommendations include clarifying Sec. 337’s domestic industry requirement as it relates to patent licensing, moving the public interest inquiry to an earlier point in a Sec. 337 case, and applying the Supreme Court’s *eBay* standard for injunctive relief in actions seeking an exclusion order at the ITC.⁹⁸

Approaches to actions by PAEs in federal district court have also been suggested. For example, the SHIELD Act, introduced in the 112th Congress, would have required the plaintiff in an unsuccessful computer hardware or software patent infringement lawsuit to pay the defendant’s legal costs if the plaintiff “did not have a reasonable likelihood of succeeding.”⁹⁹ Rep. Peter DeFazio, a sponsor of the bill, stated that the legislation “would force patent trolls to take financial responsibility for their frivolous

⁹⁴ James Bessen, Jennifer Ford & Michael J. Meurer, *The Private and Social Costs of Patent Trolls* 3 (B.U. Sch. of Law, Working Paper No. 11-45, 2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1930272.

⁹⁵ *Id.* at 1.

⁹⁶ *Id.* at 25–26.

⁹⁷ See *ITC’s Section 337 Proceedings Pique Congressional Interest*, DUANE MORRIS (July 24, 2012), http://www.duanemorris.com/alerts/ITC_section_337_proceedings_pique_congressional_interest_4525.html.

⁹⁸ See Colleen V. Chien, *Protecting Domestic Industries at the ITC*, 28 SANTA CLARA COMPUTER & HIGH TECH. L.J. 169, 175 (2011).

⁹⁹ Saving High-Tech Innovators from Egregious Legal Disputes Act of 2012, H.R. 6245, 112th Cong. (2012).

lawsuits.”¹⁰⁰ But the bill has attracted criticism on the ground that, by creating different treatment and rules for different areas of technology, it raises potential concerns under international trade agreements.¹⁰¹ Ultimately, Congress will determine how to best protect the patents of all intellectual property owners—large and small—while ensuring that frivolous patent lawsuits do not place an undue burden on companies that actually invest in R&D and provide goods and services to consumers.

4. Trade Secret Theft

Although patents and piracy dominated much of the national IP debate in 2012, legislators and courts also are paying increased attention to trade secret theft. Businesses are increasingly concerned about international espionage and the theft of their intellectual property.¹⁰²

The wake-up call for many businesses was an April 2012 ruling by the Second Circuit.¹⁰³ In that case, a jury had convicted Sergey Aleynikov, a former Goldman Sachs & Co. computer programmer, of stealing source code from Goldman’s trading system and uploading the code to a server in Germany, in violation of federal law, including the Economic Espionage Act of 1996 (“EEA”).¹⁰⁴ The Second Circuit reversed the conviction, concluding that because the EEA only prohibits the transmission of a product “that is produced for [] or placed in interstate or foreign commerce,” it does not apply to Goldman’s trading system.¹⁰⁵ The Court reasoned that Goldman “had no intention of selling its

¹⁰⁰ Press Release, DeFazio Introduces SHIELD Act to Protect American Innovation, Jobs (Aug. 1, 2012).

¹⁰¹ Daniel O’Connor, *Helping Startups Help Themselves: Why the SHIELD Act is TRIPS Compliant*, DISRUPTIVE COMPETITION PROJECT (Dec. 5, 2012), <http://www.project-disco.org/intellectual-property/120512-helping-startups-help-themselves-why-the-shield-act-is-trips-compliant>.

¹⁰² *See It’s an Age-Old Crime: Stealing*, THE FEDERAL BUREAU OF INVESTIGATION: INTELLECTUAL PROPERTY THEFT (Jan. 26, 2013, 5:32 PM), http://www.fbi.gov/about-us/investigate/white_collar/ipr/ipr.

¹⁰³ *See United States v. Aleynikov*, 676 F.3d 71 (2d Cir. 2012).

¹⁰⁴ *Id.* at 73–74. *See* 18 U.S.C. § 1832 (1996).

¹⁰⁵ *Aleynikov*, 676 F.3d at 75 (quoting 18 U.S.C. § 1832).

[trading] system or licensing it to anyone.”¹⁰⁶ Judge Guido Calabresi concurred, writing that although the EEA does not literally prohibit Aleynikov’s conduct, he believes that Congress intended to do so.¹⁰⁷ He wrote to “express the hope that Congress will return to the issue and state, in appropriate language, what I believe they meant to make criminal in the EEA.”¹⁰⁸

Congress promptly responded to Judge Calabresi’s request. In late 2012, it passed the Theft of Trade Secrets Clarification Act amending the EEA to cover products and services “intended for use” in interstate or foreign commerce.¹⁰⁹ Senator Patrick Leahy, the sponsor of the measure, said that the new law will help “ensure that American companies can protect the products they work so hard to develop, so they may continue to grow and thrive.”¹¹⁰

Although the EEA amendment addresses some concerns about trade secret theft, several high-profile cases have kept the issue at the forefront of national debate.¹¹¹ Lawmakers have proposed amending the EEA to create a federal civil remedy for victims of trade secret theft.¹¹² Currently, victims may only sue under state trade secrets laws, which vary widely and present many procedural obstacles.¹¹³ Moreover, the U.S. Intellectual Property Enforcement Coordinator has made it a top priority to protect trade secrets, and is partnering with foreign law enforcement agencies to crack down

¹⁰⁶ *Id.* at 82.

¹⁰⁷ *Id.* at 83 (Calabresi, J., concurring) (“While the legislative history can be read to create some ambiguity as to how broad a reach the EEA was designed to have, it is hard for me to conclude that Congress, in this law, actually meant to exempt the kind of behavior in which Aleynikov engaged.”).

¹⁰⁸ *Id.*

¹⁰⁹ Theft of Trade Secrets Clarification Act of 2012, Pub. L. No. 112-236, 126 Stat. 1627 (2012).

¹¹⁰ Ramsey Cox, *Senate Passes Bill Clarifying Theft of Trade Secrets*, THE HILL (Nov. 28, 2012, 9:59 AM), <http://thehill.com/blogs/floor-action/senate/269783-senate-passes-bill-clarifying-theft-of-trade-secrets>.

¹¹¹ *See, e.g., Aleynikov*, 676 F.3d 71.

¹¹² Protecting American Trade Secrets and Innovation Act of 2012, S. 3389, 112th Cong. (2012).

¹¹³ *See* John T. Cross, *UTSA Displacement of Other State Law Claims*, 33 HAMLINE L. REV. 445, 471 (2010).

on theft.¹¹⁴ Because trade secret theft can severely damage companies, I expect the debate to continue over the next year.

CONCLUSION

Ultimately, intellectual property law is about preserving a balance between the initial inventors and follow-on competitors, and the balance between creators and consumers. It is about striking that balance anew amidst all of the new advances in technology—advances that seem to come more quickly all the time. In part, this requires that the law retain the confidence of consumers and voters. Legislators, administrative agencies, courts, and technology companies must view all of their policies through the lens of the consumer and ensure that we respect established consumer expectations and values.

To conclude where we began: “Technology and Intellectual Property: Is it out of sync or is there hope for the future?” It is both. It is out of sync because technology evolves every day, and striking an appropriate balance is difficult. But just as it has been for almost every decade for nearly 300 years, technology is part of our hope for the future, intellectual property is part of our hope for the future, and the intersection between technology and intellectual property together provides one of the strongest hopes of all.

¹¹⁴ See generally *International IP Enforcement: Opening Markets Abroad and Protecting Innovation: Hearing Before the Subcomm. on Intellectual Property, Competition, and the Internet of the H. Comm. on the Judiciary*, 112th Cong. 2 (2012) (statement of Victoria A. Espinel, U.S. Intellectual Property Enforcement Coordinator, Office of Management and Budget) (“[The Subcommittee on Intellectual Property, Competition, and the Internet] held hearings in April with industry stakeholders and in June with the Deputy Director of the USPTO to look at the patent systems in foreign countries and whether they meet global trading standards.”).